**IN THE CLAIMS**:

Claims 1, 2, 5, 13 through 16, and 19 have been amended herein. Claim 25 has been cancelled. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

1. (Currently Amended) A core bit, comprising:

a bit body having a face surface with a throat opening thereinto, the throat extending to a longitudinal cavity;

at least one cutter disposed on the face surface; and

at least one bore extending through the bit body between at least one port inlet and at least one port outlet;

wherein the at least one port outlet is formed in the face surface of the bit body;

wherein the at least one port inlet is formed generally within the bit body; and

wherein the at least one port inlet is conically shaped and opens into the longitudinal cavity.

2. (Currently Amended) A core bit, comprising:

a bit body having a face surface with a throat opening thereinto, the throat extending to a longitudinal cavity;

at least one cutter disposed on the face surface; and

at least one bore extending through the bit body between at least one port inlet and at least one port outlet;

wherein the at least one port outlet is formed in the face surface of the bit body;

wherein the at least one port inlet is formed generally within the bit body; and

wherein the at least one port inlet includes a first end having a first cross-sectional area joined to the at least one bore and extending to a second end having a second cross-sectional area

larger than the first cross-sectional area, the second end opening into the longitudinal cavity.

3. (Previously Presented) The core bit of claim 2, wherein the at least one port inlet comprises a generally conical shape.

4. (Previously Presented) The core bit of claim 2, wherein the at least one port inlet comprises a generally pyramidal shape.

5. (Currently Amended) A core barrel assembly for cutting core samples in subterranean formations, comprising:

an outer barrel having one end attached to a drill string;

an inner barrel assembly rotatably disposed inside the outer barrel, the inner barrel assembly including an inner tube and a core shoe attached to one end of the inner tube;

a core bit attached to an opposing end of the outer barrel proximate the core shoe, the core bit including:

a bit body having a face surface with a throat opening thereinto, the throat extending to a longitudinal cavity;

at least one cutter disposed on the face surface; and

at least one bore extending through the bit body between at least one port inlet and at least one port outlet;

wherein the at least one port outlet is formed in the face surface of the bit body;

wherein the at least one port inlet is formed generally within the bit body; and

wherein the at least one port inlet includes a first end having a first cross-sectional area joined to the at least one bore and extending to a second end having a second cross-sectional area larger than the first cross-sectional area, the second end opening into the longitudinal cavity.

6. (Previously Presented) The core barrel assembly of claim 5, wherein the at least one port inlet comprises a generally conical shape.

7. (Previously Presented) The core barrel assembly of claim 5, wherein the at least one port inlet comprises a generally pyramidal shape.

8. (Previously Presented) A core bit for attachment to a core barrel assembly, the core barrel assembly including an outer barrel, an inner tube disposed within the outer barrel, and a core shoe disposed at one end of the inner tube, comprising:

a bit body including a face surface and further including an inner, substantially cylindrical, longitudinally extending cavity bounded by an inside diameter of the bit body, and configured to receive at least the core shoe therein;

wherein a flow path is defined by an annular region bounded by the inside diameter of the bit body and an outside diameter of at least the core shoe;

at least one cutter disposed on the face surface; and

at least one bore extending through the bit body between at least one port inlet and at least one port outlet;

wherein the at least one port inlet forms an angle of approach relative to the flow path defined by the annular region proximate the at least one port inlet of between about zero and 44 degrees;

wherein the at least one port outlet is formed in the face surface of the bit body.

9. (Previously Presented) The core bit of claim 8, wherein the angle of approach is about 30 degrees.

10. (Previously Presented) A core barrel assembly for cutting core samples in subterranean formations, comprising:

an outer barrel having one end attached to a drill string;

an inner barrel assembly disposed inside the outer barrel, the inner barrel assembly including an inner tube and a core shoe attached to one end of the inner tube;

a core bit attached to an opposing end of the outer barrel proximate the core shoe, the core bit including:

a bit body including a face surface and further including an inner, substantially cylindrical, longitudinally extending cavity bounded by an inside diameter of the bit body, at least the core shoe extending into the cavity;

wherein a flow path is defined by an annular region bounded by the inside diameter of the bit body and an outside diameter of at least the core shoe;

at least one cutter disposed on the face surface;

at least one bore extending through the bit body between at least one port inlet and at least one port outlet;

wherein the at least one port inlet forms an angle of approach relative to the flow path defined by the annular region proximate the at least one port inlet of between about zero and 44 degrees;

wherein the at least one port outlet is formed in the face surface of the bit body.

11. (Previously Presented) The core barrel assembly of claim 10, wherein the angle of approach is about 30 degrees.

12. (Previously Presented) A core bit for attachment to a core barrel assembly including a core shoe of a predetermined exterior configuration, the core bit comprising:

a bit body including a face surface and further including an inner, substantially cylindrical cavity longitudinally extending therethrough;

at least one cutter disposed on the face surface; and

at least one bore extending through the bit body between at least one port inlet and at least one port outlet;

wherein the at least one port outlet is formed in the face surface of the bit body;

wherein the at least one port inlet opens into the cavity at a region thereof defining an annular reservoir, the annular reservoir configured to induce fluid recirculation zones in fluid passing therethrough.

13. (Currently Amended) A core bit for attachment to a core barrel assembly, the core barrel assembly including an outer barrel, an inner tube disposed within the outer barrel, and a core shoe of a predetermined exterior configuration disposed at one end of the inner tube, comprising:

a bit body including a face surface and further including an inner, substantially cylindrical cavity longitudinally extending therethrough, at least the core shoe extending into the cavity;

at least one cutter disposed on the face surface; and

at least one surface feature ~~disposed on~~extending from a wall of the cavity configured to individually impart resistance to fluid flow in a narrow annulus defined by the wall of the cavity and an outside surface of the core shoe.

14. (Currently Amended) The core bit of claim 13, wherein the at least one surface feature is selected from the group consisting of: at least one annularly extending squared edge; at least one annular, generally rectangular cross-sectional relief; at least one annular, generally triangular cross-sectional relief; and at least one annular, generally circular cross-sectional relief.

15. (Currently Amended) A core barrel assembly for cutting core samples in subterranean formations, comprising:

an outer barrel having one end attached to a drill string;

an inner barrel assembly disposed inside the outer barrel, the inner barrel assembly including an inner tube and a core shoe of a predetermined exterior configuration attached to one end of the inner tube;

a core bit attached to an opposing end of the outer barrel proximate the core shoe, the core bit including:

a bit body including a face surface and further including an inner, substantially cylindrical cavity longitudinally extending therethrough, at least the core shoe extending into the cavity;

at least one cutter disposed on the face surface; and

at least one surface feature ~~disposed on~~extending from a wall of the cavity configured to individually impart resistance to fluid flow in a narrow annulus defined by the wall of the cavity and an outside surface of the core shoe.

16. (Currently Amended) The core barrel assembly of claim 15, wherein the at least one surface feature is selected from the group consisting of: at least one annularly extending squared edge; at least one annular, generally rectangular cross-sectional relief; at least one annular, generally triangular cross-sectional relief; and at least one annular, generally circular cross-sectional relief.

17. (Previously Presented) A core bit for attachment to a core barrel assembly, the core barrel assembly including an outer barrel, an inner tube disposed within the outer barrel, and a core shoe of a predetermined exterior configuration disposed at one end of the inner tube, comprising:

a bit body including a face surface and further including an inner, substantially cylindrical, longitudinally extending cavity bounded by a wall of the cavity, at least the core shoe extending into the cavity;

wherein a flow path is defined by an annular region bounded by the wall of the cavity and an outside surface of at least the core shoe;

at least one cutter disposed on the face surface;

at least one port outlet disposed on the face surface;

at least one bore extending through the bit body between at least one port inlet and at least one port outlet; and

wherein the at least one port inlet opens into the annular region and includes a first end having a first cross-sectional area joined to the at least one bore and extends to a second end

having a second cross-sectional area larger than the first cross-sectional area, the at least one port inlet forming an angle of approach relative to the flow path defined by the annular region proximate the at least one port inlet of between about zero and 44 degrees.

18. (Previously Presented) The core bit of claim 17, further comprising at least one topographical feature disposed on the wall of the cavity configured to individually impart resistance to fluid flow in a narrow annulus defined by a portion of the wall of the cavity below the annular region and an outside surface of the core shoe.

19. (Currently Amended) A port structure for delivering drilling fluid to a face surface of a core bit, comprising:

a bore extending through the core bit between at least one port inlet and at least one port outlet; and

wherein the at least one port outlet is formed in the face surface of the core bit;

wherein the at least one port inlet is formed generally within the bit body; and

wherein the at least one port inlet includes a first end having a first cross-sectional area joined to the bore and extending to a second end having a second cross-sectional area larger than the first cross-sectional area.

20. (Previously Presented) The port structure of claim 19, wherein the at least one port inlet comprises a generally conical shape.

21. (Previously Presented) The port structure of claim 19, wherein the at least one port inlet comprises a generally pyramidal shape.

22. (Previously Presented) A port structure for delivering drilling fluid to a face surface of a core bit attached to a core barrel assembly, the core barrel assembly including an outer barrel, an inner tube disposed within the outer barrel, and a core shoe disposed at one end of the inner tube adjacent the core bit, at least the core shoe extending into an inner, substantially

cylindrical cavity longitudinally extending into the core bit, wherein a flow path is defined by an annular region bounded by a wall of the cavity and an outside surface of the core shoe, the port structure comprising:

a bore extending through the core bit between at least one port inlet and at least one port outlet; and

wherein the at least one a port inlet forms an angle of approach relative to the flow path defined by the annular region proximate the at least one port inlet of between about zero and 44 degrees.

23. (Previously Presented) The port structure of claim 22, wherein the angle of approach is about 30 degrees.

24. (Previously Presented) A method of reducing a quantity of fluid flowing from an annular region bounded by a wall of a cavity through a core bit and an outside surface of a core shoe disposed therein, and into a narrow annulus therebelow defined by the wall of the cavity and the outside surface of the core shoe, the narrow annulus in fluid communication with the annular region, the method comprising:

providing a plurality of ports, each port including a bore and extending through the core bit between an inlet and an outlet;

reducing a quantity of fluid flow through the narrow annulus, the reducing comprising:

enlarging a cross-sectional area of the port inlet of each port of the plurality of ports relative to a cross-sectional area of the bore of each port of the plurality of ports, each port inlet of the each port proximate to the annular region; and

receiving fluid from the annular region into the enlarged cross-sectional area of each port inlet.

25. (Cancelled)

26. (Previously Presented) A method of reducing fluid flow into a narrow annulus defined by an inside surface of a core bit and an outside surface of a core shoe extending into the core bit, comprising:

imparting circumferential flow to fluid within an annular reservoir in fluid communication with the narrow annulus; and

receiving the circumferentially flowing fluid in a plurality of ports in fluid communication with the annular reservoir.

27. (Previously Presented) A method of reducing fluid flow in a narrow annulus defined by an inside surface of a core bit and an outside surface of a core shoe extending into the core bit, comprising creating fluid recirculation zones along the inside surface of the core bit to impart resistance to fluid flow in the narrow annulus.

28. (Previously Presented) The method of claim 24, further comprising recirculating fluid within the annular region.

29. (Previously Presented) The method of claim 26, further comprising recirculating fluid within the annular reservoir.